

REGULATIONS FOR THE CONTROL AND ABATEMENT OF AIR POLLUTION (9 VAC 5 CHAPTER 40)

9 VAC 5 CHAPTER 40.
EXISTING SOURCES.

PART II.
Emission Standards.

ARTICLE 46.
Small Municipal Waste Combustors (Rule 4-46).

9 VAC 5-40-6550. Applicability and designation of affected facility.

A. Except as provided in subsections C and D of this section, the affected facilities to which the provisions of this article apply are small municipal waste combustion units that have (i) the capacity to combust at least 35 tons per day of municipal solid waste but no more than 250 tons per day of municipal solid waste or refuse-derived fuel, and (ii) commenced construction on or before August 30, 1999.

B. The provisions of this article apply throughout the Commonwealth of Virginia.

C. The following provisions govern changes to municipal waste combustion units.

1. If the owner of a municipal waste combustion unit makes changes that meet the definition of modification or reconstruction after June 6, 2001 for 40 CFR Subpart AAAA (9 VAC 5-50-410), the municipal waste combustion unit becomes subject to Article 5 (9 VAC 5-50-400 et seq.) of Part II of 9 VAC 5 Chapter 50 and the provisions of this article no longer apply to that unit.

2. If the owner of a municipal waste combustion unit makes physical or operational changes to an existing municipal waste combustion unit

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primarily to comply with the provisions of this article, Article 5 (9 VAC 5-50-400 et seq.) of Part II of 9 VAC 5 Chapter 50 does not apply to that unit. Such changes do not constitute modifications or reconstructions under 40 CFR Subpart AAAA (9 VAC 5-50-410).

D. Exempt from the provisions of this article are the following.

1. Small municipal waste combustion units that combust less than 11 tons per day and meet the following conditions.

a. The unit is subject to a federally enforceable permit limiting the amount of municipal solid waste combusted to less than 11 tons per day.

b. The owner notifies the board that the unit qualifies for the exemption.

c. The owner provides the board with a copy of the federally enforceable permit.

d. The owner keeps daily records of the amount of municipal solid waste combusted.

2. Small power production units that meet the following conditions.

a. The unit qualifies as a small power production facility under section 3(17)(C) of the Federal Power Act (16 USC 796(17)(C)).

b. The unit combusts homogeneous waste (excluding refuse-derived fuel) to produce electricity.

c. The owner notifies the board that the unit qualifies for the exemption.

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d. The board receives documentation from the owner that the unit qualifies for the exemption.

3. Cogeneration units that meet the following conditions.

a. The unit qualifies as a cogeneration facility under section 3(18)(B) of the Federal Power Act (16 USC 796(18)(B)).

b. The unit combusts homogeneous waste (excluding refuse-derived fuel) to produce electricity and steam or other forms of energy used for industrial, commercial, heating, or cooling purposes.

c. The owner notifies the board that the unit qualifies for the exemption.

d. The board receives documentation from the owner that the unit qualifies for the exemption.

4. Municipal waste combustion units that combust only tires and meet the following conditions.

a. The unit combusts a single-item waste stream of tires and no other municipal waste (the unit can co-fire coal, fuel oil, natural gas, or other nonmunicipal solid waste).

b. The owner notifies the board that the unit qualifies for the exemption.

c. The board receives documentation from the owner that the unit qualifies for the exemption.

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5. Hazardous waste combustion units that have received a permit under 9 VAC 20 Chapter 60 (9 VAC 20-60-10 et seq.).

6. Materials recovery units that combust waste mainly to recover metals. Primary and secondary smelters may qualify.

7. Co-fired units that meet the following conditions.

a. The unit has a federally enforceable permit limiting municipal solid waste combustion to 30 percent of the total fuel input by weight.

b. The board is notified by the owner that the unit qualifies for the exemption.

c. The owner provides the board with a copy of the federally enforceable permit.

d. The owner records the weights, each quarter, of municipal solid waste and of all other fuels combusted.

8. Plastics/rubber recycling units that meet the following conditions.

a. The pyrolysis/combustion unit is an integrated part of a plastics/rubber recycling unit.

b. The owner records the weight, each quarter, of plastics, rubber, and rubber tires processed.

c. The owner records the weight, each quarter, of feed stocks produced and marketed from chemical plants and petroleum refineries.

d. The owner maintains the name and address of

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the purchaser of the feed stocks.

9. Units that combust fuels made from products of plastics/rubber recycling plants and meet the following criteria.

a. The unit combusts gasoline, diesel fuel, jet fuel, fuel oils, residual oil, refinery gas, petroleum coke, liquefied petroleum gas, propane, or butane produced by chemical plants or petroleum refineries that use feed stocks produced by plastics/rubber recycling units.

b. The unit does not combust any other municipal solid waste.

10. Cement kilns that combust municipal solid waste.

11. Air curtain incinerators that combust 100 percent yard waste are exempt from the requirements of this article except they shall meet the requirements of 9 VAC 5-40-6780.

12. Affected municipal waste combustion units that meet the following criteria.

a. The owner reduces, by the final compliance dates in 9 VAC 5-40-6710, the maximum combustion capacity of the unit to less than 35 tons per day of municipal solid waste. A permit restriction or a change in the method of operation does not qualify as a reduction in capacity.

b. The owner submits a final control plan and the notifications of achievement of increments of progress as specified in 9 VAC 5-40-6710 B. The final control plan shall, at a minimum, include the following.

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(1) A description of the physical changes that will be made to accomplish the reduction.

(2) Calculations of the current maximum combustion capacity and the planned maximum combustion capacity after the reduction. The combustion capacity of a municipal waste combustion unit shall be calculated as specified in 9 VAC 5-40-6730 F.

9 VAC 5-40-6560. Definitions.

A. For the purpose of the Regulations for the Control and Abatement of Air Pollution and subsequent amendments or any orders issued by the board, the words or terms shall have the meaning given them in subsection C of this section.

B. As used in this rule, all terms not defined herein shall have the meaning given them in 9 VAC 5 Chapter 10 (9 VAC 5-10-10 et seq.), unless otherwise required by context.

C. Terms Defined.

"Administrator" means the Administrator of the U.S. Environmental Protection Agency.

"Air curtain incinerator" means an incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which combustion occurs. Incinerators of that type can be constructed above or below ground and with or without refractory walls and floor.

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"Batch municipal waste combustion unit" means a municipal waste combustion unit designed so it cannot combust municipal solid waste continuously 24 hours per day because the design does not allow waste to be fed to the unit or ash to be removed during combustion.

"Calendar quarter" means three consecutive months (nonoverlapping) beginning on January 1, April 1, July 1, or October 1.

"Calendar year" means 365 (or 366 consecutive days in leap years) consecutive days starting on January 1 and ending on December 31.

"Chief facility operator" means the person in direct charge and control of the operation of a municipal waste combustion unit. That person is responsible for daily onsite supervision, technical direction, management, and overall performance of the municipal waste combustion unit.

"Class I units" mean small municipal waste combustion units subject to this article that are located at municipal waste combustion plants with an aggregate plant combustion capacity greater than 250 tons per day of municipal solid waste. See the definition in this section of "municipal waste combustion plant capacity" for specification of which units at a plant site are included in the aggregate capacity calculation.

"Class II units" mean small municipal combustion units subject to this article that are located at municipal waste combustion plants with aggregate plant combustion capacity less than or equal to 250 tons per day of municipal solid waste. See the definition

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in this section of "municipal waste combustion plant capacity" for specification of which units at a plant site are included in the aggregate capacity calculation.

"Clean wood" means untreated wood or untreated wood products including clean untreated lumber, tree stumps (whole or chipped), and tree limbs (whole or chipped).

Clean wood does not include: (i) yard waste, or (ii) construction, renovation, or demolition wastes (for example, railroad ties and telephone poles) that are exempt from the definition of "municipal solid waste" in this section.

"Co-fired combustion unit" means a unit that combusts municipal solid waste with nonmunicipal solid waste fuel (for example, coal, industrial process waste). To be considered a co-fired combustion unit, the unit shall be subject to a federally enforceable permit that limits it to combusting a fuel feed stream which is 30 percent or less (by weight) municipal solid waste as measured each calendar quarter.

"Continuous burning" means the continuous, semicontinuous, or batch feeding of municipal solid waste to dispose of the waste, produce energy, or provide heat to the combustion system in preparation for waste disposal or energy production.

Continuous burning does not mean the use of municipal solid waste solely to thermally protect the grate or hearth during the startup period when municipal solid waste is not fed to the grate or hearth.

"Continuous emission monitoring system" means a monitoring system that continuously measures the emissions of a pollutant from a municipal waste combustion unit.

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"Dioxins/furans" mean tetra-through octachlorinated dibenzo-p-dioxins and dibenzofurans.

"Effective date of Section 111(d)/129 Plan approval" means the effective date that EPA approves the Section 111(d)/129 Plan. The Federal Register specifies the date in the notice that announces EPA's approval of the Section 111(d)/129 Plan.

"Eight-hour block average" means the average of all hourly emission concentrations or parameter levels when the municipal waste combustion unit operates and combusts municipal solid waste measured over any of three, 8-hour periods of time: (i) 12:00 midnight to 8:00 a.m., (ii) 8:00 a.m. to 4:00 p.m., and (iii) 4:00 p.m. to 12:00 midnight.

"Federally enforceable" means all limitations and conditions which are enforceable by the administrator and citizens under the federal Clean Air Act or that are enforceable under other statutes administered by the administrator. Federally enforceable limitations and conditions include, but are not limited to the following:

1. Emission standards, alternative emission standards, alternative emission limitations, and equivalent emission limitations established pursuant to § 112 of the federal Clean Air Act as amended in 1990.

2. New source performance standards established pursuant to § 111 of the federal Clean Air Act, and emission standards established pursuant to § 112 of the federal Clean Air Act before it was amended in 1990.

3. All terms and conditions in a federal operating permit,

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including any provisions that limit a source's potential to emit, unless expressly designated as not federally enforceable.

4. Limitations and conditions that are part of an implementation plan established pursuant to § 110 of the federal Clean Air Act, or a § 111(d) plan.

5. Limitations and conditions that are part of a federal construction permit issued under 40 CFR 52.21 or any construction permit issued under regulations approved by EPA in accordance with 40 CFR Part 51.

6. Limitations and conditions that are part of an operating permit issued pursuant to a program approved by EPA into a SIP as meeting EPA's minimum criteria for federal enforceability, including adequate notice and opportunity for EPA and public comment prior to issuance of the final permit and practicable enforceability.

7. Limitations and conditions in a Virginia regulation or program that has been approved by EPA under subpart E of 40 CFR Part 63 for the purposes of implementing and enforcing § 112 of the federal Clean Air Act.

8. Individual consent agreements that EPA has legal authority to create.

"Federal operating permit" means a permit issued under Article 1 (9 VAC 5-80-50 et seq.) of Part II of 9 VAC 5 Chapter 80.

"First calendar half" means the period that starts on January 1 and ends on June 30 in any year.

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"Fluidized bed combustion unit" means a unit where municipal waste is combusted in a fluidized bed of material. The fluidized bed material may remain in the primary combustion zone or may be carried out of the primary combustion zone and returned through a recirculation loop.

"Four-hour block average" or "4-hour block average" means the average of all hourly emission concentrations or parameter levels when the municipal waste combustion unit operates and combusts municipal solid waste measured over any of six, 4-hour periods: (i) 12:00 midnight to 4:00 a.m., (ii) 4:00 a.m. to 8:00 a.m., (iii) 8:00 a.m. to 12:00 noon, (iv) 12:00 noon to 4:00 p.m., (v) 4:00 p.m. to 8:00 p.m., and (vi) 8:00 p.m. to 12:00 midnight.

"Mass burn refractory municipal waste combustion unit" means a field-erected municipal waste combustion unit that combusts municipal solid waste in a refractory wall furnace. Unless otherwise specified, that includes municipal waste combustion units with a cylindrical rotary refractory wall furnace.

"Mass burn rotary waterwall municipal waste combustion unit" means a field-erected municipal waste combustion unit that combusts municipal solid waste in a cylindrical rotary waterwall furnace.

"Mass burn waterwall municipal waste combustion unit" means a field-erected municipal waste combustion unit that combusts municipal solid waste in a waterwall furnace.

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"Maximum demonstrated load of a municipal waste combustion unit" means the highest 4-hour block arithmetic average municipal waste combustion unit load achieved during 4 consecutive hours in the course of the most recent dioxins/furans stack test that demonstrates compliance with the applicable emission limit for dioxins/furans specified in this article.

"Maximum demonstrated temperature of the particulate matter control device" means the highest 4-hour block arithmetic average flue gas temperature measured at the inlet of the particulate matter control device during 4 consecutive hours in the course of the most recent stack test for dioxins/furans emissions that demonstrates compliance with the limits specified in this article.

"Medical/infectious waste" means any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that is listed in subdivisions 1 through 9 of this definition. The definition of medical/infectious waste does not include hazardous waste identified or listed under the regulations in 40 CFR Part 261; household waste, as defined in 40 CFR 261.4(b)(1); ash from incineration of medical/infectious waste, once the incineration process has been completed; human corpses, remains, and anatomical parts that are intended for interment or cremation; and domestic sewage materials identified in 40 CFR 261.4(a)(1).

1. Cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and

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stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.

2. Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.

3. Human blood and blood products, regardless of whether containerized, including:

a. Liquid human blood;

b. Products of blood;

c. Items containing unabsorbed or free-flowing blood;

d. Items saturated or dripping or both with human blood; or

e. Items that were saturated and dripping or both with

human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also included in this category.

4. Regardless of the presence of infectious agents, sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and

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culture dishes. Also included are other types of broken or unbroken glassware that may have been in contact with infectious agents, such as used slides and cover slips.

5. Animal waste including contaminated animal carcasses, body parts, and bedding of animals that were known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals.

6. Isolation wastes including biological waste and discarded materials contaminated with blood, excretions, exudates, or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.

7. Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

8. Any waste that is contaminated or mixed with any waste listed in subdivisions 1 through 7 of this definition.

9. Any residue or contaminated soil, waste, or other debris resulting from the cleaning of a spill of any waste listed in subdivisions 1 through 8 of this definition.

"Mixed fuel-fired (pulverized coal/refuse-derived fuel) combustion unit"
means a combustion unit that combusts coal and refuse-derived fuel simultaneously, in which pulverized coal is introduced into an air stream that carries the coal to the

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combustion chamber of the unit where it is combusted in suspension. That includes both conventional pulverized coal and micropulverized coal.

"Modification" or "modified municipal waste combustion unit" means a municipal waste combustion unit that has been modified after June 6, 2001 and that meets one of the following criteria: (i) the cumulative cost of the changes over the life of the unit exceeds 50 percent of the original cost of building and installing the unit (not including the cost of land) updated to current costs; or (ii) any physical change in the municipal waste combustion unit or change in the method of operating it that increases the emission level of any air pollutant for which new source performance standards have been established under section 129 or section 111 of the federal Clean Air Act. Increases in the emission level of any air pollutant are determined when the municipal waste combustion unit operates at 100 percent of its physical load capability and are measured downstream of all air pollution control devices. Load restrictions based on permits or other nonphysical operational restrictions cannot be considered in the determination.

"Modular excess-air municipal waste combustion unit" means a municipal waste combustion unit that combusts municipal solid waste, is not field-erected, and has multiple combustion chambers, all of which are designed to operate at conditions with combustion air amounts in excess of theoretical air requirements.

"Modular starved-air municipal waste combustion unit" means a municipal waste combustion unit that combusts municipal solid waste, is not field-erected, and has

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multiple combustion chambers in which the primary combustion chamber is designed to operate at substoichiometric conditions.

"Municipal solid waste or municipal-type solid waste" means household, commercial/retail, or institutional waste. Household waste includes material discarded by residential dwellings, hotels, motels, and other similar permanent or temporary housing. Commercial/retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities. Institutional waste includes materials discarded by schools, by hospitals (nonmedical), by nonmanufacturing activities at prisons and government facilities, and other similar establishments or facilities. Household, commercial/retail, and institutional waste does include yard waste and refuse-derived fuel. Household, commercial/retail, and institutional waste does not include used oil; sewage sludge; wood pallets; construction, renovation, and demolition wastes (which include railroad ties and telephone poles); clean wood; industrial process or manufacturing wastes; medical waste; or motor vehicles (including motor vehicle parts or vehicle fluff).

"Municipal waste combustion plant" means one or more municipal waste combustion units at the same location.

"Municipal waste combustion plant capacity" means the aggregate municipal waste combustion capacity of all municipal waste combustion units at the plant that are not subject to subparts Ea, Eb, or AAAA of 40 CFR Part 60.

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"Municipal waste combustion unit" means any setting or equipment that combusts solid, liquid, or gasified municipal solid waste including, but not limited to, field-erected combustion units (with or without heat recovery), modular combustion units (starved-air or excess-air), boilers (for example, steam generating units), furnaces (whether suspension-fired, grate-fired, mass-fired, air curtain incinerators, or fluidized bed-fired), and pyrolysis/combustion units. Municipal waste combustion units do not include pyrolysis or combustion units located at a plastics or rubber recycling unit. Municipal waste combustion units do not include cement kilns that combust municipal solid waste. Municipal waste combustion units do not include internal combustion engines, gas turbines, or other combustion devices that combust landfill gases collected by landfill gas collection systems. The municipal waste combustion unit includes, but is not limited to, the municipal solid waste fuel feed system, grate system, flue gas system, bottom ash system, and the combustion unit water system. The municipal waste combustion unit does not include air pollution control equipment, the stack, water treatment equipment, or the turbine-generator set. The municipal waste combustion unit boundary starts at the municipal solid waste pit or hopper and extends through: (i) the combustion unit flue gas system, which ends immediately after the heat recovery equipment or, if there is no heat recovery equipment, immediately after the combustion chamber; (ii) the combustion unit bottom ash system, which ends at the truck loading station or similar equipment that transfers the ash to final disposal. It includes all ash handling systems connected to the bottom ash handling

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system; and (iii) the combustion unit water system, which starts at the feed water pump and ends at the piping that exits the steam drum or superheater.

"Particulate matter" means total particulate matter emitted from municipal waste combustion units as measured using Reference Method 5 and the procedures specified in 9 VAC 5-40-6740 D.

"Plastics or rubber recycling unit" means an integrated processing unit for which plastics, rubber, or rubber tires are the only feed materials (incidental contaminants may be in the feed materials). The feed materials are processed and marketed to become input feed stock for chemical plants or petroleum refineries. Each calendar quarter, the combined weight of the feed stock that a plastics or rubber recycling unit produces shall be more than 70 percent of the combined weight of the plastics, rubber, and rubber tires that recycling unit processes. The plastics, rubber, or rubber tires fed to the recycling unit may originate from separating or diverting plastics, rubber, or rubber tires from municipal or industrial solid waste. The feed materials may include manufacturing scraps, trimmings, and off-specification plastics, rubber, and rubber tire discards. The plastics, rubber, and rubber tires fed to the recycling unit may contain incidental contaminants (for example, paper labels on plastic bottles or metal rings on plastic bottle caps).

"Potential hydrogen chloride emissions" means the level of emissions from a municipal waste combustion unit that would occur from combusting municipal solid waste without emission controls for acid gases.

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"Potential mercury emissions" means the level of emissions from a municipal waste combustion unit that would occur from combusting municipal solid waste without controls for mercury emissions.

"Potential sulfur dioxide emissions" means the level of emissions from a municipal waste combustion unit that would occur from combusting municipal solid waste without emission controls for acid gases.

"Pyrolysis/combustion unit" means a unit that produces gases, liquids, or solids by heating municipal solid waste. The gases, liquids, or solids produced are combusted and the emissions vented to the atmosphere.

"Reconstruction" means rebuilding a municipal waste combustion unit and meeting two criteria: (i) the reconstruction begins after June 6, 2001; and (ii) the cumulative cost of the construction over the life of the unit exceeds 50 percent of the original cost of building and installing the municipal waste combustion unit (not including land) updated to current costs (current dollars). To determine what systems are within the boundary of the municipal waste combustion unit used to calculate the costs, see the definition in this section of "municipal waste combustion unit."

"Refractory unit" or "refractory wall furnace" means a municipal waste combustion unit that has no energy recovery (such as through a waterwall) in the furnace of the municipal waste combustion unit.

"Refuse-derived fuel" means a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification. Refuse-

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derived fuel includes all classes of refuse-derived fuel, including low-density fluff refuse-derived fuel through densified refuse-derived fuel, and pelletized refuse-derived fuel.

"Same location" means the same or contiguous properties under common ownership or control, including those separated only by a street, road, highway, or other public right-of-way. Common ownership or control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, subdivision, or any combination thereof. Entities may include a municipality, other governmental unit, or any quasi-governmental authority (for example, a public utility district or regional authority for waste disposal).

"Second calendar half" means the period that starts on July 1 and ends on December 31 in any year.

"Shift supervisor" means the person who is in direct charge and control of operating a municipal waste combustion unit and who is responsible for onsite supervision, technical direction, management, and overall performance of the municipal waste combustion unit during an assigned shift.

"Spreader stoker, mixed fuel-fired (coal/refuse-derived fuel) combustion unit" means a municipal waste combustion unit that combusts coal and refuse-derived fuel simultaneously, in which coal is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

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"Standard conditions," when referring to units of measure, means a temperature of 20 degrees Centigrade and a pressure of 101.3 kilopascals.

"Startup period" means the period when a municipal waste combustion unit begins the continuous combustion of municipal solid waste. It does not include any warmup period during which the municipal waste combustion unit combusts fossil fuel or other solid waste fuel but receives no municipal solid waste.

"Section 111(d) plan" means the portion or portions of the plan, or the most recent revision thereof, which has been approved under 40 CFR 60.27(b) in accordance with §§ 111(d)(1) and 129(b)(2) of the federal Clean Air Act, or promulgated under 40 CFR 60.27(d) in accordance with § 111(d)(2) of the federal Clean Air Act, and which implements the relevant requirements of the federal Clean Air Act.

"Stoker (refuse-derived fuel) combustion unit" means a steam generating unit that combusts refuse-derived fuel in a semisuspension combusting mode, using air-fed distributors.

"Total mass dioxins/furans or total mass" means the total mass of tetra- through octachlorinated dibenzo-p-dioxins and dibenzofurans as determined using Reference Method 23 and the procedures specified in 9 VAC 5-40-6740 D.

"Twenty-four hour daily average" or "24-hour daily average" means either the arithmetic mean or geometric mean (as specified) of all hourly emission concentrations when the municipal waste combustion unit operates and combusts municipal solid waste measured during the 24 hours between 12:00 midnight and the following midnight.

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"Untreated lumber" means wood or wood products that have been cut or shaped and include wet, air-dried, and kiln-dried wood products. Untreated lumber does not include wood products that have been painted, pigment-stained, or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol, and creosote.

"Waterwall furnace" means a municipal waste combustion unit that has energy (heat) recovery in the furnace (for example, radiant heat transfer section) of the combustion unit.

"Yard waste" means grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs that come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands. Yard waste does not include: (i) construction, renovation, and demolition wastes that are exempt from the definition of "municipal solid waste" in this section; or (ii) clean wood that is exempt from the definition of "municipal solid waste" in this section.

9 VAC 5-40-6570. Limit for particulate matter.

A. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class I unit any particulate emissions in excess of 27 milligrams per dry standard cubic meter, measured at 7 percent oxygen, 3-run average.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class II unit any particulate emissions in excess of 70 milligrams per dry standard cubic meter, measured at 7 percent oxygen, 3-run average.

9 VAC 5-40-6580. Limit for carbon monoxide.

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A. No owner or other person shall cause or permit to be discharged into the atmosphere from any small municipal waste combustion unit any carbon monoxide emissions in excess of the following.

1. For fluidized bed units: 100 parts per million by dry volume, measured at 7 percent oxygen, 4-hour block average, arithmetic mean.

2. For fluidized bed, mixed fuel (wood/refuse-derived fuel) units: 200 parts per million by dry volume measured at 7 percent oxygen, 24-hour block average, geometric mean.

3. For mass burn rotary refractory units: 100 parts per million by dry volume measured at 7 percent oxygen, 4-hour block average, arithmetic mean.

4. For mass burn rotary waterwall units: 250 parts per million by dry volume measured at 7 percent oxygen, 24-hour block average, arithmetic mean.

5. For mass burn waterwall and refractory units: 100 parts per million by dry volume measured at 7 percent oxygen, 4-hour block average, arithmetic mean.

6. For mixed fuel-fired (pulverized coal/refuse-derived fuel) units: 150 parts per million by dry volume measured at 7 percent oxygen, 4-hour block average, arithmetic mean.

7. For modular starved-air and excess air units: 50 parts per million by dry volume measured at 7 percent oxygen, 4-hour block average, arithmetic mean.

8. For spreader stoker, mixed fuel-fired (coal/refuse-derived fuel) units: 200 parts per million by dry volume measured at 7 percent oxygen, 24-hour daily block

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average, arithmetic mean.

9. For stoker, refuse-derived fuel units: 200 parts per million by dry volume measured at 7 percent oxygen, 24-hour daily block average, arithmetic mean.

9 VAC 5-40-6590. Limit for dioxins/furans.

A. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class I unit any dioxin/furan (total mass basis) emissions in excess of the following.

1. For units that do not use an electrostatic precipitator-based emission control system: 30 nanograms per dry standard cubic meter, measured at 7 percent oxygen, 3-run average (minimum run duration of 4 hours).

2. For units that use electrostatic precipitator-based emission control system: 60 nanograms per dry standard cubic meter, measured at 7 percent oxygen, 3-run average (minimum run duration of 4 hours).

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class II unit any dioxin/furan emissions (total mass basis) in excess of 125 nanograms per dry standard cubic meter, measured at 7 percent oxygen, 3-run average (minimum run duration of 4 hours).

9 VAC 5-40-6600. Limit for hydrogen chloride.

A. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class I unit any hydrogen chloride emissions in excess of 31 parts per million by dry volume or 95 percent reduction of potential emissions, measured at 7

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percent oxygen, 3-run average (minimum run duration of 1 hour).

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class II unit any hydrogen chloride emissions in excess of 250 parts per million by dry volume or 50 percent reduction of potential emissions, measured at 7 percent oxygen, 3-run average (minimum run duration of 1 hour).

9 VAC 5-40-6610. Limit for sulfur dioxide.

A. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class I unit any sulfur dioxide emissions in excess of 31 parts per million by dry volume or 75 percent reduction of potential emissions, measured at 7 percent oxygen, 24-hour daily block geometric average concentration or percent reduction.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class II unit any sulfur dioxide emissions in excess of 77 parts per million by dry volume or 50 percent reduction of potential emissions, measured at 7 percent oxygen, 24-hour daily block geometric average concentration or percent reduction.

9 VAC 5-40-6620. Limit for nitrogen oxides.

No owner or other person shall cause or permit to be discharged into the atmosphere from any small municipal waste combustor any nitrogen oxide emissions in excess of the following.

1. For mass burn waterwall units: 200 parts per million by dry volume, measured at 7 percent oxygen, 24-hour daily block arithmetic average concentration.

2. For mass burn rotary waterwall units: 170 parts per million by dry

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volume measured at 7 percent oxygen, 24-hour daily block arithmetic average concentration.

3. For refuse-derived fuel units: 250 parts per million by dry volume, measured at 7 percent oxygen, 24-hour daily block arithmetic average concentration.

4. For fluidized bed units: 220 parts per million by dry volume, measured at 7 percent oxygen, 24-hour daily block arithmetic average concentration.

5. For mass burn refractory units: 350 parts per million by dry volume, measured at 7 percent oxygen, 24-hour daily block arithmetic average concentration.

6. For modular excess air units: 190 parts per million by dry volume, measured at 7 percent oxygen, 24-hour daily block arithmetic average concentration.

7. For modular starved air units: 380 parts per million by dry volume, measured at 7 percent oxygen, 24-hour daily block arithmetic average concentration.

9 VAC 5-40-6630. Limit for lead.

A. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class I unit any lead emissions in excess of 0.490 milligrams per dry standard cubic meter, measured at 7 percent oxygen, 3-run average.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class II unit any lead emissions in excess of 1.6 milligrams per dry standard cubic meter, measured at 7 percent oxygen, 3-run average.

9 VAC 5-40-6640. Limit for cadmium.

A. No owner or other person shall cause or permit to be discharged into the

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atmosphere from any Class I unit any cadmium emissions in excess of 0.040 milligrams per dry standard cubic meter, measured at 7 percent oxygen, 3-run average.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class II unit any cadmium emissions in excess of 0.10 milligrams per dry standard cubic meter, measured at 7 percent oxygen, 3-run average.

9 VAC 5-40-6650. Limit for mercury.

A. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class I unit any mercury emissions in excess of 0.080 milligrams per dry standard cubic meter, measured at 7 percent oxygen, 3-run average.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any Class II unit any mercury emissions in excess of 0.080 milligrams per dry standard cubic meter, measured at 7 percent oxygen, 3-run average.

9 VAC 5-40-6660. Limit for visible emissions.

A. The provisions of Article 1 (9 VAC 5-40-60 et seq.) of 9 VAC 5 Chapter 40 (Emission Standards for Visible Emissions) apply except that the provisions in subsection B of this section apply instead of 9 VAC 5-40-80.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any small municipal waste combustion unit any visible emissions which exhibit greater than 10 percent opacity, measured at thirty, 6-minute averages.

9 VAC 5-40-6670. Standard for fugitive dust/emissions.

A. The provisions of Article 1 (9 VAC 5-40-60 et seq.) of 9 VAC 5 Chapter 40

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(Emission Standards for Fugitive Dust/Emissions, Rule 4-1) apply.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any small municipal waste combustion unit any fugitive ash visible emissions for more than 5 percent of hourly observation period, measured at three, 1-hour observation periods.

9 VAC 5-40-6680. Standard for odor.

The provisions of Article 2 (9 VAC 5-40-130 et seq.) of 9 VAC 5 Chapter 40 (Emission Standards for Odor, Rule 4-2) apply.

9 VAC 5-40-6690. Standard for toxic pollutants.

The provisions of Article 3 (9 VAC 5-40-160 et seq.) of 9 VAC 5 Chapter 40 (Emission Standards for Toxic Pollutants, Rule 4-3) apply.

9 VAC 5-40-6700. Operator training and certification.

A. Each chief facility operator, shift supervisor, and control room operator shall complete a training course as follows.

1. The operator training course shall be completed by the later of (i) one year after the effective date of Section 111(d)/129 Plan approval, (ii) six months after the municipal waste combustion unit starts up, or (iii) the date before an employee assumes responsibilities that affect operation of the municipal waste combustion unit.

2. The requirement in subdivision A 1 of this section does not apply to chief facility operators, shift supervisors, and control room operators who have obtained full certification from the American Society of Mechanical Engineers on or before the effective

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date of Section 111(d)/129 Plan approval.

3. The owner may request that the board waive the requirement in subdivision A 1 of this section for chief facility operators, shift supervisors, and control room operators who have obtained provisional certification from the American Society of Mechanical Engineers on or before the effective date of Section 111(d)/129 Plan approval.

B. A plant-specific training course and operating manual shall be established as follows.

1. All employees with responsibilities that affect how a municipal waste combustion unit operates, including but not limited to, chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane or load handlers, shall complete the plant-specific training course.

2. A plant-specific operating manual shall be developed by the later of (i) six months after the municipal waste combustor unit starts up, or (ii) one year after the effective date of Section 111(d)/129 Plan approval.

3. A program to review the plant-specific operating manual with people whose responsibilities affect the operation of the municipal waste combustion unit shall be established. Initial review of the program shall be completed by the later of (i) one year after the effective date of Section 111(d)/129 Plan approval, (ii) six months after the municipal waste combustor unit starts up, or (iii) the date before an employee assumes responsibilities that affect operation of the municipal waste combustion unit.

4. The manual shall be updated and reviewed with staff annually.

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5. The following information shall be included in the plant-specific operating manual.
- a. A summary of all applicable requirements in this article.
 - b. A description of the basic combustion principles that apply to municipal waste combustion units.
 - c. Procedures for receiving, handling, and feeding municipal solid waste.
 - d. Procedures to be followed during periods of startup, shutdown, and malfunction of the municipal waste combustion unit.
 - e. Procedures for maintaining a proper level of combustion air supply.
 - f. Procedures for operating the municipal waste combustion unit in compliance with the requirements contained in this article.
 - g. Procedures for responding to periodic upset or off-specification conditions.
 - h. Procedures for minimizing carryover of particulate matter.
 - i. Procedures for handling ash.
 - j. Procedures for monitoring emissions from the municipal waste combustion unit.
 - k. Procedures for recordkeeping and reporting.
6. The operating manual shall be maintained in an easily accessible

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location at the plant. It shall be available for review or inspection by all employees who are required to review it and by the board.

C. Each chief facility operator and shift supervisor shall obtain operator certification as follows.

1. Each chief facility operator and shift supervisor shall obtain and maintain one of the following:

a. A current provisional operator certification from the American Society of Mechanical Engineers (QRO-1-1994) in conjunction with the licensing requirements of the Board for Waste Management Facility Operators as required by 18 VAC 155 Chapter 20 (18 VAC 155-20-10 et seq.); or

b. A license from the Board for Waste Management Facility Operators as required by 18 VAC 155 Chapter 20 (18 VAC 18-20-10 et seq.).

2. The certification and licensing required in subdivisions C 1 a and C 1 b of this section shall be obtained by the later of the following:

a. For Class I units, 12 months after the effective date of Section 111(d)/129 Plan approval; for Class II units, 18 months after the effective date of Section 111(d)/129 Plan approval.

b. Six months after the municipal waste combustion unit starts up.

c. Six months after being transferred to the municipal waste combustion unit or 6 months after they are hired to work at the municipal waste combustion unit.

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3. Each chief facility operator and shift supervisor shall:

a. Obtain a full certification from the American Society of Mechanical Engineers in conjunction with the Board for Waste Management Facility Operators as required by 18 VAC 155 Chapter 20 (18 VAC 155-20-10 et seq.); or

b. Schedule a full certification exam with the American Society of Mechanical Engineers (QRO-1-1994) in conjunction with the Board for Waste Management Facility Operators as required by 18 VAC 155 Chapter 20 (18 VAC 155-20-10 et seq.); or

c. Obtain a license from the Board for Waste Management Facility Operators as required by 18 VAC 155 Chapter 20 (18 VAC 155-20-10 et seq.).

4. The chief facility operator and shift supervisor shall obtain the full certification or be scheduled to take the certification and licensing exam as required in subdivision C 3 of this section by the later of the following dates.

a. For Class I units, 12 months after the effective date of Section 111(d)/129 Plan approval; for Class II units, 18 months after the effective date of Section 111(d)/129 Plan approval.

b. Six months after the municipal waste combustion unit starts up.

c. Six months after they transfer to the municipal waste combustion unit or 6 months after they are hired to work at the municipal waste combustion unit.

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D. After the required date for full or provisional certification and full license, no municipal waste combustion unit shall be operated unless one of following employees is on duty:

1. A fully certified chief facility operator.

2. A provisionally certified chief facility operator who is scheduled to take the full certification exam.

3. A fully certified shift supervisor.

4. A provisionally certified shift supervisor who is scheduled to take the full certification exam.

E. No owner of an affected facility shall allow the facility to be operated at any time unless a person is on duty who is responsible for the proper operation of the facility and has a license from the Board for Waste Management Facility Operators in the correct classification.

F. If the certified chief facility operator and certified shift supervisor both are unavailable, a provisionally certified control room operator at the municipal waste combustion unit may fulfill the certified operator requirement. Depending on the length of time that a certified chief facility operator and certified shift supervisor are away, the owner shall meet one of the following.

1. When the certified chief facility operator and certified shift supervisor are both offsite for 12 hours or less and no other certified operator is onsite, the

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provisionally certified control room operator may perform those duties without notice to, or approval by, the board.

2. When the certified chief facility operator and certified shift supervisor are offsite for more than 12 hours, but for 2 weeks or less, and no other certified operator is onsite, the provisionally certified control room operator may perform those duties without notice to, or approval by, the board. The periods when the certified chief facility operator and certified shift supervisor are offsite shall be recorded and included in the annual report as specified under 9 VAC 5-40-6770 B 2 I.

3. When the certified chief facility operator and certified shift supervisor are offsite for more than 2 weeks, and no other certified operator is onsite, the provisionally certified control room operator may perform those duties without notice to, or approval by, the board, and the owner shall:

a. Notify the board in writing what caused the absence and what is being done to ensure that a certified chief facility operator or certified shift supervisor is onsite; and

b. Submit a status report and corrective action summary to the board every 4 weeks following the initial notification. If the board notifies the owner that the status report or corrective action summary is disapproved, the municipal waste combustion unit shall cease operation after 90 days. If corrective actions are taken in the 90-day period such that the board withdraws the disapproval, municipal waste combustion unit operation may continue.

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G. All training and licensing shall be in accordance with § 54.1-2212 of the Code of Virginia and with 18 VAC 155-20-10 et seq. (Regulations for the Virginia Board for Waste Management Facility Operators).

9 VAC 5-40-6710. Compliance schedule.

A. Small municipal waste combustion units shall achieve final compliance or cease operation as expeditiously as practicable but not later than December 6, 2005, or three years after the effective date of Section 111(d)/129 Plan approval, whichever is earlier.

B. The enforceable increments of progress shall be met as follows.

1. If a Class I unit plans to achieve compliance more than 1 year following the effective date of Section 111(d)/129 Plan approval and a permit modification is not required, or more than 1 year following the date of issuance of a revised construction or operation permit if a permit modification is required, the Class I unit shall:

a. Submit a final control plan no later than six months after the effective date of Section 111(d)/129 Plan approval.

b. Submit a notification of retrofit contract award no later than one year after the effective date of Section 111(d)/129 Plan approval.

c. Initiate onsite construction no later than two years after the effective date of Section 111(d)/129 Plan approval.

d. Complete onsite construction no later than 30 months after the effective date of Section 111(d)/129 Plan approval.

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e. Achieve final compliance no later than three years after the effective date of Section 111(d)/129 Plan approval, or December 6, 2005, whichever is earlier.

2. Class I units that commenced construction after June 26, 1987 shall comply with the dioxins/furans and mercury limits specified in 9 VAC 5-40-6590 and 9 VAC 5-40-6650 no later than one year following the effective date of Section 111(d)/129 Plan approval, or one year following the issuance of a revised construction or operation permit, if a permit modification is required. Final compliance shall be achieved no later than December 6, 2005 even if the date one year after the issuance of a revised construction or operation permit is later than December 6, 2005.

3. If a Class II unit plans to achieve compliance more than 1 year following the effective date of Section 111(d)/129 Plan approval and a permit modification is not required, or more than 1 year following the date of issuance of a revised construction or operation permit if a permit modification is required, the Class II unit shall:

a. Submit a final control plan no later than six months after the effective date of Section 111(d)/129 Plan approval.

b. Achieve final compliance no later than three years after the effective date of Section 111(d)/129 Plan approval, or December 6, 2005, whichever is earlier.

C. The following provisions govern municipal waste combustor closure.

1. If a municipal waste combustion unit is closed but will reopen prior to

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the final compliance date, the increments of progress specified in subdivision B 1 of this section shall be met. If a municipal waste combustion unit is closed but will be restarted after the final compliance date, emission control retrofit shall be completed and emission limits and good combustion practices shall be met on the date the municipal waste combustion unit restarts operation.

2. If a municipal waste combustion unit will be closed rather than comply with this article, the owner shall submit a closure notification, including the date of closure, to the board by the date the final control plan is due. If the closure date is later than 1 year after the effective date of Section 111(d)/129 Plan approval, the owner shall enter into a legally binding closure agreement with the board by the date the final control plan is due. The agreement shall specify the date by which operation will cease.

D. Notification of achievement of increments of progress shall be prepared and submitted as follows.

1. The notification shall state that the increment of progress has been achieved and shall include any items required to be submitted with the increment of progress listed in subdivision D 3 of this section. The notification shall be signed by the owner or operator of the municipal waste combustion unit, and shall be postmarked no later than 10 days after the compliance date for the increment.

2. If an increment of progress is not met, the owner shall submit a notification to the board postmarked within 10 business days after the specified date in subsection B of this section for achieving that increment of progress. The notification shall

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inform the board that the increment was not met, explain why, and include a plan for meeting the increment as expeditiously as possible. Reports shall be submitted each subsequent month until the increment of progress is met.

3. Individual increments of progress shall be reported as follows.

a. For the control plan increment of progress, the owner shall submit the final control plan, including a description of the devices for air pollution control and process changes that will be used to comply with the emission limits and other requirements of this article. An onsite copy of the final control plan shall be maintained.

b. For the awarding contracts increment of progress, the owner shall submit a signed copy of the contracts awarded to initiate onsite construction, initiate onsite installation of emission control equipment, and incorporate process changes. A copy of the contracts shall be included with the notification that the increment of progress has been achieved, exclusive of documents incorporated by reference or attachments to the contracts.

c. For the initiating onsite construction increment of progress, the owner shall initiate onsite construction and installation of emission control equipment and initiate the process changes outlined in the final control plan.

d. For the completing onsite construction increment of progress, the owner shall complete onsite construction and installation of emission control equipment and complete process changes outlined in the final control plan.

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e. For the final compliance increment of progress, the owner shall complete all process changes and complete retrofit construction as specified in the final control plan; and connect the air pollution control equipment with the municipal waste combustion unit identified in the final control plan and complete process changes to the municipal waste combustion unit so that if the affected municipal waste combustion unit is brought online, all necessary process changes and air pollution control equipment are operating as designed.

9 VAC 5-40-6720. Operating requirements.

A. No owner shall operate any municipal waste combustion unit at loads greater than 110 percent of the maximum demonstrated load of the municipal waste combustion unit (4-hour block average).

B. The municipal waste combustion unit shall be operated such that the temperature at the inlet of the particulate matter control device does not exceed 17 degrees Centigrade above the maximum demonstrated temperature of the particulate matter control device (4-hour block average).

C. If the municipal waste combustion unit uses activated carbon to control dioxins/furans or mercury emissions, an 8-hour block average carbon feed rate at or above the highest average level established during the most recent dioxins/furans or mercury test shall be maintained.

D. If the municipal waste combustion unit uses activated carbon to control dioxins/furans or mercury emissions, the total carbon usage for each calendar quarter shall

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be evaluated. The total amount of carbon purchased and delivered to the municipal waste combustion plant shall be at or above the required quarterly usage of carbon. The owner may choose to evaluate required quarterly carbon usage on a municipal waste combustion unit basis for each individual municipal waste combustion unit. The quarterly usage of carbon shall be calculated as required in 9 VAC 5-40-6760 F 1 e (1) and (2).

E. A municipal waste combustion unit is exempt from limits on load level, temperature at the inlet of the particulate matter control device, and carbon feed rate during any of the following.

1. Annual tests for dioxins/furans.
2. Annual mercury tests (for carbon feed rate requirements only).
3. The 2 weeks preceding annual tests for dioxins/furans.
4. The 2 weeks preceding annual mercury tests (for carbon feed rate requirements only).
5. Whenever the board allows any of the following.
 - a. Evaluation of system performance.
 - b. Testing of new technology or control technologies.
 - c. Performance of diagnostic testing.
 - d. Performance of other activities to improve unit performance.
 - e. Performance of other activities to advance the state of the art for emission controls for the municipal waste combustion unit.

9 VAC 5-40-6730. Compliance.

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A. The provisions governing compliance shall be as follows:

1. With regard to the emissions standards in 9 VAC 5-40-6660 A, 9 VAC 5-40-6670, 9 VAC 5-40-6680, and 9 VAC 5-40-6690, the provisions of 9 VAC 5-40-20 (Compliance) apply.

2. With regard to the emission limits in 9 VAC 5-40-6570 through 9 VAC 5-40-6650 and 9 VAC 5-40-6660 B, the following provisions apply:

a. 9 VAC 5-40-20 B, C, D, and E.

b. 40 CFR 60.11.

c. Subsections B through F of this section.

B. After the date the initial stack test and continuous emission monitoring system evaluation are required or completed, whichever is earlier, the owner shall meet the applicable emission limits specified in 9 VAC 5-40-6570 through 9 VAC 5-40-6660.

C. Initial and annual stack tests shall be conducted to measure the emission levels of dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash. The results of stack tests for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash shall be used to demonstrate compliance with the applicable emission limits. Compliance for carbon monoxide, nitrogen oxides, and sulfur dioxide shall be demonstrated as provided in subsection E of this section.

D. The owner shall (i) install continuous emission monitoring systems for certain gaseous pollutants, (ii) operate continuous emission monitoring systems correctly, (iii)

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obtain the minimum amount of monitoring data, and (iv) install a continuous opacity monitoring system.

E. The owner shall use data from the continuous emission monitoring systems for sulfur dioxide, nitrogen oxides, and carbon monoxide in order to demonstrate continuous compliance with the applicable emission limits specified in 9 VAC 5-40-6610, 9 VAC 5-40-6620, and 9 VAC 5-40-6580.

F. Municipal waste combustion unit capacity shall be determined as follows.

1. For a municipal waste combustion unit that can operate continuously for 24-hour periods, the municipal waste combustion unit capacity shall be calculated based on 24 hours of operation at the maximum charge rate. The maximum charge rate shall be determined by one of the following methods.

a. For municipal waste combustion units with a design based on heat input capacity, the maximum charging rate shall be calculated based on the maximum heat input capacity and one of the following heating values:

(1) If the municipal waste combustion unit combusts refuse-derived fuel, a heating value of 12,800 kilojoules per kilogram (5,500 British thermal units per pound) shall be used; or

(2) If the municipal waste combustion unit combusts municipal solid waste, a heating value of 10,500 kilojoules per kilogram (4,500 British thermal units per pound) shall be used.

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b. For municipal waste combustion units with a design not based on heat input capacity, the maximum designed charging rate shall be used.

2. Batch municipal waste combustion unit capacity shall be determined by calculating the maximum design amount of municipal solid waste that can be charged per batch multiplied by the maximum number of batches that can be processed in 24 hours. The maximum number of batches shall be calculated by dividing 24 by the number of hours needed to process one batch. Fractional batches shall be retained in the calculation; for example, if one batch requires 16 hours, the municipal waste combustion unit can combust 24/16, or 1.5 batches, in 24 hours.

9 VAC 5-40-6740. Test methods and procedures.

A. The provisions governing test methods and procedures shall be as follows:

1. With regard to the emissions standards in 9 VAC 5-40-6660 B, 9 VAC 5-40-6670, 9 VAC 5-40-6680, and 9 VAC 5-40-6690, the provisions of 9 VAC 5-40-30 (Emission testing) apply.

2. With regard to the emission limits in 9 VAC 5-40-6570 through 9 VAC 5-40-6650 and 9 VAC 5-40-6660 B, the following provisions apply:

a. 9 VAC 5-40-30 D and G.

b. 40 CFR 60.8(b) through (f).

c. Subsections B through F of this section.

B. Class I units shall submit dioxin/furan stack test results for at least one test conducted during or after 1990. The stack tests shall have been conducted according to

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the procedures specified under subsection D of this section.

C. Stack testing shall be conducted on the following schedule.

1. Initial stack tests for the pollutants listed in 9 VAC 5-40-6730 C shall be conducted no later than 180 days after the final compliance date.

2. Annual stack tests for the pollutants listed in 9 VAC 5-40-6730 C shall be conducted no later than 13 months after the initial stack test and no later than 13 months after the previous stack test thereafter.

D. Stack testing shall be conducted as follows.

1. Specific testing requirements are as follows.

a. For dioxins/furans: Reference Method 1 shall be used to determine the sampling location. Reference Method 23 shall be used to measure the pollutant concentration; oxygen (or carbon dioxide) shall be measured simultaneously using Reference Method 3A or 3B. The minimum sampling time shall be 4 hours per test run while the municipal waste combustion unit is operating at full load.

b. For cadmium: Reference Method 1 shall be used to determine the sampling location. Reference Method 29 shall be used to measure the pollutant concentration; oxygen (or carbon dioxide) shall be measured simultaneously using Reference Method 3A or 3B. Compliance testing shall be performed while the municipal waste combustion unit is operating at full load.

c. For lead: Reference Method 1 shall be used to determine the sampling location. Reference Method 29 shall be used to measure the pollutant

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concentration; oxygen (or carbon dioxide) shall be measured simultaneously using Reference Method 3A or 3B. Compliance testing shall be performed while the municipal waste combustion unit is operating at full load.

d. For mercury: Reference Method 1 shall be used to determine the sampling location. Reference Method 29 shall be used to measure the pollutant concentration; oxygen (or carbon dioxide) shall be measured simultaneously using Reference Method 3A or 3B. Compliance testing shall be performed while the municipal waste combustion unit is operating at full load.

e. For opacity: Reference Method 9 shall be used to determine the sampling location, and Reference Method 9 shall be used to measure the pollutant concentration. Reference Method 9 shall be used to determine compliance with the opacity limits, using a 3-hour observation period (thirty, 6-minute averages).

f. For particulate matter: Reference Method 1 shall be used to determine the sampling location, and Reference Method 5 or 29 shall be used to measure the pollutant concentration. The minimum sample probe volume shall be 1.0 cubic meters. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature no greater than 160 ± 14 degrees centigrade. The minimum sampling time is one hour.

g. For hydrogen chloride: Reference Method 1 shall be used to determine the sampling location. Reference Method 26 or 26A shall be used to measure the pollutant concentration; oxygen (or carbon dioxide) shall be measured simultaneously

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using Reference Method 3A or 3B. Test runs shall be at least one hour long while the municipal waste combustion unit is operating at full load.

h. For fugitive ash: No sampling location applies. Reference Method 22 (visible emissions) shall be used to measure the pollutant concentration. The three, 1-hour observation period shall include periods when the facility transfers fugitive ash from the municipal waste combustion unit to the area where the fugitive ash is stored or loaded onto containers or trucks.

i. For sulfur dioxide, nitrogen oxide, and carbon monoxide, continuous emission monitoring systems shall be used. Stack tests are not required except for quality assurance requirements in appendix F of 40 CFR Part 60.

2. Stack tests for all pollutants shall consist of at least three test runs as specified in 40 CFR 60.8. The average of the pollutant emission concentrations from the three test runs shall be used to determine compliance with the applicable emission limits.

3. Oxygen (or carbon dioxide) measurements shall be obtained at the same time as the pollutant measurements to determine diluent gas levels, as specified in 9 VAC 5-40-6750 B.

4. The percent reduction in potential hydrogen chloride emission shall be calculated using the following equation:

$$\underline{\%P_{HCl} = (E_i - E_o) * (100 / E_i)}$$

where:

%P_{HCl} = percent reduction of the potential hydrogen chloride emissions

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E_i = hydrogen chloride emission concentration as measured at the air pollution control device inlet, corrected to 7 percent oxygen, dry basis

E_o = hydrogen chloride emission concentration as measured at the air pollution control device outlet, corrected to 7 percent oxygen, dry basis

5. The reduction efficiency for mercury emissions shall be calculated using the following equation:

$$\underline{\%P_{Hg} = (E_i - E_o) * (100 / E_i)}$$

where:

$\%P_{Hg}$ = percent reduction of potential mercury emissions

E_i = mercury emission concentration as measured at the air pollution control device inlet, corrected to 7 percent oxygen, dry basis

E_o = mercury emission concentration as measured at the air pollution control device outlet, corrected to 7 percent oxygen, dry basis

6. The owner may apply to the board for approval under 40 CFR 60.8(b) to use a reference method with minor changes in methodology, use an equivalent method, use an alternative method the results of which the board has determined are adequate for demonstrating compliance, waive the requirement for a performance test because the owner has demonstrated compliance by other means, or use a shorter sampling time or smaller sampling volume.

E. Alternative stack testing schedules may be established as follows.

1. A Class II unit that has conducted stack tests for dioxins/furans,

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cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash over 3 consecutive years, and has demonstrated compliance with the emission limits is not required to conduct a stack test for that pollutant for the next 2 years. A stack test shall be conducted within 36 months of the anniversary date of the third consecutive stack test that shows compliance with the emission limit. Thereafter, stack tests shall be performed every third year but no later than 36 months following the previous stack tests. If a stack test shows noncompliance with an emission limit, annual stack tests for that pollutant shall be conducted until all stack tests over three consecutive years show compliance with the emission limit for that pollutant.

2. An alternative test schedule for dioxins/furans emissions may be established if the following criteria are met: (i) the affected facility contains multiple municipal waste combustion units onsite that are subject to this article; and (ii) those municipal waste combustion units have demonstrated levels of dioxins/furans emissions less than or equal to 15 nanograms per dry standard cubic meter (total mass) for Class I units, or 30 nanograms per dry standard cubic meter (total mass) for Class II units, for 2 consecutive years. If these criteria are met, annual stack tests shall be conducted on only one municipal waste combustion unit per year. Stack tests conducted under the provisions of this subdivision shall be conducted as follows.

a. The annual stack test shall be conducted no more than 13 months following a stack test on any municipal waste combustion unit subject to this article. Each year a different municipal waste combustion unit subject to this article shall be

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tested. All municipal waste combustion units subject to this article shall be tested in a sequence determined by the owner. Once a testing sequence has been determined it shall not be changed without approval of the board.

b. If each annual stack test shows levels of dioxins/furans emissions less than or equal to 15 nanograms per dry standard cubic meter (total mass) for Class I units, or 30 nanograms per dry standard cubic meter (total mass) for Class II units, stack tests may be conducted on only one municipal waste combustion unit subject to this article per year.

c. If any annual stack test indicates levels of dioxins/furans emissions greater than 15 nanograms per dry standard cubic meter (total mass) for Class I units, or 30 nanograms per dry standard cubic meter (total mass) for Class II units, subsequent annual stack tests shall be conducted on all municipal waste combustion units subject to this article. The owner may return to testing one municipal waste combustion unit subject to this article per year if it can demonstrate dioxins/furans emissions levels less than or equal to 15 nanograms per dry standard cubic meter (total mass) for Class I units, or 30 nanograms per dry standard cubic meter (total mass) for Class II units, for all municipal waste combustion units at a stationary source subject to this article for 2 consecutive years.

F. No owner of an affected facility shall deviate from the 13-month testing schedules specified in 9 VAC 5-40-6740 C and 9 VAC 5-40-6740 E 2 a without applying to the board for an alternative schedule, and the board approves the request for alternate

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scheduling prior to the date on which the owner would otherwise have been required to conduct the next stack test.

9 VAC 5-40-6750. Monitoring.

A. The provisions governing monitoring shall be as follows:

1. With regard to the emissions standards in 9 VAC 5-40-6660 A, 9 VAC 5-40-6670, 9 VAC 5-40-6680, and 9 VAC 5-40-6690, the provisions of 9 VAC 5-40-40 (Monitoring) apply.

2. With regard to the emission limits in 9 VAC 5-40-6570 through 9 VAC 5-40-6650 and 9 VAC 5-40-6660 B, the following provisions apply:

a. 9 VAC 5-40-40 A and F.

b. 40 CFR 60.13.

c. Subsections B through L of this section.

B. Continuous emission monitoring systems for gaseous pollutants shall be installed as follows.

1. Each affected municipal waste combustion unit shall install, calibrate, maintain, and operate continuous emission monitoring systems for oxygen (or carbon dioxide), sulfur dioxide, and carbon monoxide. Class I municipal waste combustion units shall also install, calibrate, maintain, and operate a continuous emission monitoring system for nitrogen oxides. The continuous emission monitoring systems for sulfur dioxide, nitrogen oxides, and oxygen (or carbon dioxide) shall be installed at the outlet of the air pollution control device.

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2. Each continuous emission monitoring system shall be installed, evaluated, and operated according to the monitoring requirements in 40 CFR 60.13.

3. The oxygen (or carbon dioxide) concentration shall be monitored at each location where sulfur dioxide and carbon monoxide are monitored. Class I units shall also monitor the oxygen (or carbon dioxide) concentration at the location where nitrogen oxides are monitored.

4. Carbon dioxide may be monitored instead of oxygen as a diluent gas. If carbon dioxide is monitored, then an oxygen monitor is not required and the requirements in 9 VAC 5-40-6750 F shall be met.

5. If compliance is demonstrated by monitoring the percent reduction of sulfur dioxide, continuous emission monitoring systems for sulfur dioxide and oxygen (or carbon dioxide) shall be installed at the inlet of the air pollution control device.

6. If an alternative sulfur dioxide monitoring method is used, such as parametric monitoring, or if the source cannot monitor emissions at the inlet of the air pollution control device to determine percent reduction, an alternative monitoring method may be used on approval of the board under 40 CFR 60.13(i).

C. Continuous emission monitoring systems shall be operated as follows.

1. Initial, daily, quarterly, and annual evaluations of the continuous emission monitoring systems that measure oxygen (or carbon dioxide), sulfur dioxide, nitrogen oxides (Class I units only), and carbon monoxide shall be conducted.

2. The initial evaluation of the continuous emission monitoring systems

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shall be completed within 180 days after the final compliance date.

3. For initial and annual evaluations, data shall be collected concurrently (or within 30 to 60 minutes) using the oxygen (or carbon dioxide) continuous emission monitoring system, the sulfur dioxide, nitrogen oxides, or carbon monoxide continuous emission monitoring systems, as appropriate, using the following test methods:

a. For nitrogen oxides as monitored by Class I units, the pollutant concentration levels shall be validated using Reference Method 7, 7A, 7B, 7C, 7D, or 7E; oxygen (or carbon monoxide) shall be measured using Reference Method 3 or 3A.

b. For sulfur dioxide, the pollutant concentration levels shall be validated using Reference Method 6 or 6C; oxygen (or carbon monoxide) shall be measured using Reference Method 3 or 3A.

c. For carbon monoxide, the pollutant concentration levels shall be validated using Reference Method 10, 10A, or 10B; oxygen (or carbon monoxide) shall be measured using Reference Method 3 or 3A.

4. Data shall be collected during each initial and annual evaluation of the continuous emission monitoring systems as follows.

a. For opacity: the span value shall be 100 percent, and Performance Specification 1 shall be used. Reference Method 9 shall be used if needed to meet minimum data requirements.

b. For nitrogen oxides as monitored by Class I units: the span value for the control device outlet shall be 125 percent of the maximum expected hourly

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potential nitrogen oxides emissions of the municipal waste combustion unit, and Performance Standard 2 shall be used. Reference Method 7E shall be used if needed to meet minimum data requirements.

c. For sulfur dioxide:

(1) For the inlet to the control device: the span value shall be 125 percent of the maximum expected hourly potential sulfur dioxide emissions of the municipal waste combustion unit, and Performance Standard 2 shall be used. Reference Method 6C shall be used if needed to meet minimum data requirements.

(2) For the control device outlet: the span value shall be 50 percent of the maximum expected hourly potential sulfur dioxide emissions of the municipal waste combustion unit, and Performance Standard 2 shall be used. Reference Method 6C shall be used if needed to meet minimum data requirements.

d. For carbon monoxide: the span value shall be 125 percent of the maximum expected hourly potential carbon monoxide emissions of the municipal waste combustion unit, and Performance Specification 4A shall be used. Reference Method 10 with alternative interference trap shall be used if needed to meet minimum data requirements.

e. For oxygen or carbon dioxide: the span value shall be 25 percent oxygen or 25 percent carbon dioxide, and Performance Specification 3 shall be used. Reference Method 3A or 3B shall be used if needed to meet minimum data requirements.

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5. The quality assurance procedures in Procedure 1 of appendix F of 40 CFR Part 60 shall be followed for each continuous emission monitoring system.

D. The accuracy tests for the sulfur dioxide continuous emission monitoring system require evaluation of the oxygen (or carbon dioxide) continuous emission monitoring system. Therefore, the oxygen (or carbon dioxide) continuous emission monitoring system is exempt from Section 2.3 of Performance Specification 3 in appendix B of 40 CFR Part 60 (relative accuracy requirement) and Section 5.1.1 of appendix F of 40 CFR Part 60 (relative accuracy test audit).

E. The following schedule for evaluating continuous emission monitoring systems shall be met.

1. Annual evaluations of the continuous emission monitoring systems shall be conducted no more than 13 months after the previous evaluation was conducted.

2. Continuous emission monitoring systems shall be evaluated daily and quarterly as specified in appendix F of 40 CFR Part 60.

F. The relationship between oxygen and carbon dioxide shall be established during the initial evaluation of the continuous emission monitoring systems, and may be reestablished during annual evaluations. The relationship shall be established as follows.

1. Reference Method 3A or 3B shall be used to determine oxygen concentration at the location of the carbon dioxide monitor.

2. At least three test runs for oxygen shall be conducted. Each test run shall represent a 1-hour average, and sampling shall continue for at least 30 minutes in

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each hour.

3. The fuel-factor equation in Reference Method 3B shall be used to determine the relationship between oxygen and carbon dioxide.

G. The following monitoring data shall be collected.

1. Where continuous emission monitoring systems are required, 1-hour arithmetic averages shall be obtained. The averages for sulfur dioxide, nitrogen oxides (Class I units only), and carbon monoxide shall be in parts per million by dry volume at 7 percent oxygen (or the equivalent carbon dioxide level). The 1-hour averages of oxygen (or carbon dioxide) data from the continuous emission monitoring system shall be used to determine the actual oxygen (or carbon dioxide) level and to calculate emissions at 7 percent oxygen (or the equivalent carbon dioxide level).

2. At least two data points per hour shall be obtained in order to calculate a valid 1-hour arithmetic average. 40 CFR 60.13(e)(2) requires the continuous emission monitoring systems to complete at least one cycle of operation (sampling, analyzing, and data recording) for each 15-minute period.

3. Valid 1-hour averages shall be obtained for 75 percent of the operating hours per day for 90 percent of the operating days per calendar quarter. An operating day is any day the unit combusts any municipal solid waste or refuse-derived fuel.

4. Failure to obtain the minimum data required in subdivisions G 1 through G 3 of this section constitutes a violation of the data collection requirement

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regardless of the emission level monitored. In such case the board shall be notified according to 9 VAC 5-40-6770 B 2 e.

5. If the minimum data required in subdivisions G 1 through G 3 of this section is not obtained, the owner shall nevertheless use all valid data from the continuous emission monitoring systems in calculating emission concentrations and percent reductions in accordance with subsection H of this section.

H. One-hour arithmetic averages shall be converted into averaging times and units as follows.

1. Emissions shall be calculated at 7 percent oxygen using the following equation:

$$C_{7\%} = C_{unc} * (13.9) * (1 / (20.9 - CO_2))$$

where:

C_{7%} = concentration corrected to 7 percent oxygen.

C_{unc} = uncorrected pollutant concentration.

CO₂ = concentration of oxygen (percent).

2. Reference Method 19 shall be used to calculate the daily geometric average concentrations of sulfur dioxide emissions. Owners monitoring the percent reduction of sulfur dioxide shall use Reference Method 19 to determine the daily geometric average percent reduction of potential sulfur dioxide emissions.

3. Class I units shall use Reference Method 19 to calculate the daily arithmetic average for concentrations of nitrogen oxides.

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4. Reference Method 19 shall be used to calculate the 4-hour or 24-hour daily block averages (as applicable) for concentrations of carbon monoxide.

I. Operating parameters required for continuous monitoring are as follows.

1. Municipal waste combustion unit load shall be monitored as follows:

a. Municipal waste combustion units that generate steam shall install, calibrate, maintain, and operate a steam flowmeter or a feed water flowmeter as follows.

(1) The measurements of steam (or feed water) shall be continuously measured and recorded in kilograms (or pounds) per hour.

(2) The steam (or feed water) flow shall be calculated in 4-hour block averages.

(3) The steam (or feed water) flow rate shall be calculated using the method in "American Society of Mechanical Engineers Power Test Codes: Test Code for Steam Generating Units, Power Test Code 4.1--1964 (R1991)," section 4.

(4) Nozzles or orifices for flow rate measurements shall be designed, constructed, installed, calibrated, and used following the recommendations in "American Society of Mechanical Engineers Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters," 6th Edition (1971), chapter 4.

(5) Before each dioxins/furans stack test, or at least once a year, all signal conversion elements associated with steam (or feed water) flow measurements shall be calibrated according to the manufacturer's instructions.

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b. If the municipal waste combustion units do not generate steam, or if the municipal waste combustion units have shared steam systems and steam load cannot be estimated per unit, the owner shall determine, to the satisfaction of the board, one or more operating parameters that can be used to continuously estimate load level (for example, the feed rate of municipal solid waste or refuse-derived fuel). The selected parameters shall be monitored continuously.

2. The owner shall install, calibrate, maintain, and operate a device to continuously measure the temperature of the flue gas stream at the inlet of each particulate matter control device.

3. Municipal waste combustion units that use activated carbon to control dioxins/furans or mercury emissions shall perform the following.

a. A carbon injection system operating parameter that can be used to calculate carbon feed rate (for example, screw feeder speed) shall be selected.

b. During each dioxins/furans and mercury stack test, the average carbon feed rate in kilograms (or pounds) per hour and the average operating parameter level that correlates to the carbon feed rate shall be determined. A relationship between the operating parameter and the carbon feed rate in order to calculate the carbon feed rate based on the operating parameter level shall be established.

c. The selected operating parameter shall be continuously monitored during all periods when the municipal waste combustion unit is operating and combusting waste, and the 8-hour block average carbon feed rate shall be calculated in

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kilograms (or pounds) per hour, based on the selected operating parameter. When calculating the 8-hour block average, (i) hours when the municipal waste combustion unit is not operating shall be excluded, and (ii) hours when the municipal waste combustion unit is operating but the carbon feed system is not working correctly shall be included.

4. Continuous parameter monitoring systems shall meet the following requirements.

a. 1-hour arithmetic averages shall be obtained for the following parameters:

(1) Load level of the municipal waste combustion unit;

(2) Temperature of the flue gases at the inlet of the particulate matter control device; and

(3) Carbon feed rate if activated carbon is used to control dioxins/furans or mercury emissions.

b. In order to calculate a valid 1-hour arithmetic average, at least two data points per hour shall be obtained.

c. Valid 1-hour averages shall be obtained for at least 75 percent of the operating hours per day for 90 percent of the operating days per calendar quarter.

An operating day is any day the unit combusts any municipal solid waste or refuse-derived fuel.

d. If the minimum data required in subdivisions 1 4 a through c of this section are not obtained, the owner is in violation of the data collection requirement,

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and shall notify the board according to 9 VAC 5-40-6770 B 2 e.

J. An initial evaluation of the continuous opacity monitoring system shall be completed according to Performance Specification 1 in appendix B of 40 CFR Part 60 no later than 180 days after the final compliance date. Each annual evaluation of the continuous opacity monitoring system shall be completed no more than 13 months after the previous evaluation. Tests shall be conducted according to Reference Method 9, as specified in 9 VAC 5-40-6740 D, to determine compliance with the opacity limit in 9 VAC 5-40-6660. The data obtained from the continuous opacity monitoring system are not used to determine compliance with the opacity limit.

K. Operation of the continuous emission monitoring systems and continuous opacity monitoring system shall use the required span values and applicable performance specifications in 9 VAC 5-40-6750 C.

L. If any continuous emission monitoring systems are temporarily unavailable to meet the data collection requirements due to systems malfunction or when repairs, calibration checks, or zero and span checks prevent collection of the minimum amount of data, the alternate methods found in 9 VAC 5-40-6740 D shall be used.

9 VAC 5-40-6760. Recordkeeping.

A. The provisions governing recordkeeping shall be as follows:

1. With regard to the emissions standards in 9 VAC 5-40-6660 A, 9 VAC 5-40-6670, 9 VAC 5-40-6680, and 9 VAC 5-40-6690, the provisions of 9 VAC 5-40-50 (Notification, records and reporting) apply.

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2. With regard to the emission limits in 9 VAC 5-40-6570 through 9 VAC 5-40-6650 and 9 VAC 5-40-6660 B, the following provisions apply:

- a. 9 VAC 5-40-50 F and H.
- b. 40 CFR 60.7.
- c. Subsections B through F of this section.

B. All records shall be kept onsite in paper copy or electronic format unless the board approves another format. All records on each municipal waste combustion unit shall be kept for at least 5 years, and shall be available for submittal to the board or for onsite review by an inspector.

C. The following records for operator training and certification shall be maintained.

1. Records of provisional certifications, including:

a. For the municipal waste combustion plant, names of the chief facility operator, shift supervisors, and control room operators who are provisionally certified by the American Society of Mechanical Engineers, or an equivalent board-approved certification program.

b. Dates of the initial provisional certifications.

c. Documentation showing current provisional certifications.

2. Records of full certifications and licenses, including:

a. For the municipal waste combustion plant, names of the chief facility operator, shift supervisors, and control room operators who are fully certified by the

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American Society of Mechanical Engineers or an equivalent board-approved program.

b. Dates of initial and renewal of full certifications and licenses.

c. Documentation showing current full certifications and licenses.

3. Records showing completion of the operator training course,

including:

a. For the municipal waste combustion plant, names of the chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustion operator training course or or an equivalent board-approved program.

b. Dates of completion of the operator training course.

c. Documentation showing completion of the operator training course.

4. Records of reviews for plant-specific operating manuals, including:

a. Names of persons who have reviewed the operating manual.

b. Date of the initial review.

c. Dates of subsequent annual reviews.

5. Records of when a certified operator is temporarily offsite, including:

a. If the certified chief facility operator and certified shift supervisor are offsite for more than 12 hours, but for 2 weeks or less, and no other certified operator is onsite, the dates that the certified chief facility operator and certified shift supervisor were offsite shall be recorded.

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b. When all certified chief facility operators and certified shift supervisors are offsite for more than 2 weeks and no other certified operator is onsite, the following records shall be kept:

(1) The notice that all certified persons are offsite.

(2) The conditions that cause those people to be offsite.

(3) The corrective actions being taken to ensure a certified chief facility operator or certified shift supervisor is onsite.

(4) Copies of the written reports submitted every 4 weeks that summarize the actions taken to ensure that a certified chief facility operator or certified shift supervisor will be onsite.

6. Records of calendar dates. Include the calendar date on each record.

D. For stack tests required under 9 VAC 5-40-6730 C, the following records shall be kept.

1. Stack test results for dioxins/furans, cadmium, lead, mercury, opacity, particulate matter, hydrogen chloride, and fugitive ash.

2. Test reports, including supporting calculations that document the results of all stack tests.

3. The maximum demonstrated load of the municipal waste combustion units and maximum temperature at the inlet of the particulate matter control device during all stack tests for dioxins/furans emissions.

4. The calendar date of each record.

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E. For continuously monitored pollutants or parameters, the following records shall be maintained.

1. Records of monitoring data, including the following parameters measured using continuous monitoring systems:

- a. All 6-minute average levels of opacity.
- b. All 1-hour average concentrations of sulfur dioxide emissions.
- c. For Class I units, all 1-hour average concentrations of nitrogen oxides emissions.
- d. All 1-hour average concentrations of carbon monoxide emissions.
- e. All 1-hour average load levels of the municipal waste combustion unit.
- f. All 1-hour average flue gas temperatures at the inlet of the particulate matter control device.

2. Records of average concentrations and percent reductions.

- a. All 24-hour daily block geometric average concentrations of sulfur dioxide emissions or average percent reductions of sulfur dioxide emissions.
- b. For Class I units, all 24-hour daily arithmetic average concentrations of nitrogen oxides emissions.
- c. All 4-hour block or 24-hour daily block arithmetic average concentrations of carbon monoxide emissions.

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d. All 4-hour block arithmetic average load levels of the municipal waste combustion unit.

e. All 4-hour block arithmetic average flue gas temperatures at the inlet of the particulate matter control device.

3. Records of exceedances, including:

a. Calendar dates whenever any of the pollutant or parameter levels recorded in subdivision E 2 of this section or the opacity level recorded in subdivision E 1 of this section did not meet the emission limits or operating levels specified in this article.

b. Reasons why the applicable emission limits or operating levels were exceeded.

c. Corrective actions taken or being taken to meet the emission limits or operating levels.

4. Records of minimum data, including the following:

a. Calendar dates for which the minimum amount of data required under 9 VAC 5-40-6750 G and 9 VAC 5-40-6750 I 4 were not collected for the following types of pollutants and parameters:

(1) Sulfur dioxide emissions.

(2) For Class I units, nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load levels of the municipal waste combustion unit.

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(5) Temperatures of the flue gases at the inlet of the particulate matter control device.

b. Reasons why the minimum data were not collected.

c. Corrective actions taken or being taken to obtain the required amount of data.

5. Records of exclusions, including documentation of each time data was excluded from the calculation of averages for any of the following pollutants or parameters and the reasons why the data were excluded:

a. Sulfur dioxide emissions.

b. For Class I units, nitrogen oxides emissions.

c. Carbon monoxide emissions.

d. Load levels of the municipal waste combustion unit.

e. Temperatures of the flue gases at the inlet of the particulate matter control device.

6. Records of drift and accuracy, including documentation of the results of daily drift tests and quarterly accuracy determinations according to Procedure 1 of appendix F of 40 CFR Part 60, for the sulfur dioxide, nitrogen oxides (Class I units only), and carbon monoxide continuous emissions monitoring systems.

7. Records of the relationship between oxygen and carbon dioxide. If carbon dioxide is monitored instead of oxygen as a diluent gas, document the relationship between oxygen and carbon dioxide, as specified in 9 VAC 5-40-6750 F.

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8. Records of calendar dates shall be included on each record.

F. Municipal waste combustion units that use activated carbon to control dioxins/furans or mercury emissions shall maintain the following records.

1. Records of average carbon feed rate, including documentation of the following:

a. Average carbon feed rate in kilograms (or pounds) per hour during all stack tests for dioxins/furans and mercury emissions, with supporting calculations.

b. For the operating parameter chosen to monitor carbon feed rate, average operating level during all stack tests for dioxins/furans and mercury emissions. Supporting data that document the relationship between the operating parameter and the carbon feed rate shall be included in the records.

c. All 8-hour block average carbon feed rates in kilograms (or pounds) per hour calculated from the monitored operating parameter.

d. Total carbon purchased and delivered to the municipal waste combustion plant for each calendar quarter. If the total carbon purchased and delivered is evaluated on a municipal waste combustion unit basis, the total carbon purchased and delivered for each individual municipal waste combustion unit shall be recorded.

Supporting documentation shall be included in the records.

e. Required quarterly usage of carbon for the municipal waste combustion plant. If the required quarterly usage for carbon is evaluated on a municipal

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waste combustion unit basis, the required quarterly usage for each municipal waste combustion unit shall be recorded. Supporting calculations shall be included in the records.

(1) The following equation shall be used for calculation on a plant basis:

$$C = \sum_{i=1}^n f_i * h_i$$

where:

C = required quarterly carbon usage for the plant in kilograms (or pounds).

f_i = required carbon feed rate for the municipal waste combustion unit in kilograms (or pounds) per hour. That is, the average carbon feed rate during the most recent mercury or dioxins/furans stack tests (whichever has a higher feed rate).

h_i = number of hours the municipal waste combustion unit was in operation during the calendar quarter (hours).

n = number of municipal waste combustion units, i, located at the plant.

(2) The following equation shall be used for calculation on a unit basis:

$$C = f * h$$

where:

C = required quarterly carbon usage for the unit in kilograms (or pounds).

f = required carbon feed rate for the municipal waste combustion unit in kilograms (or pounds) per hour. That is the average carbon feed rate during the most

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recent mercury or dioxins/furans stack tests (whichever has a higher feed rate).

h = number of hours the municipal waste combustion unit was in operation during the calendar quarter (hours).

2. Records of low carbon feed rates, including the following:

a. The calendar dates when the average carbon feed rate over an 8-hour block was less than the average carbon feed rates determined during the most recent stack test for dioxins/furans or mercury emissions (whichever has a higher feed rate).

b. Reasons for the low carbon feed rates.

c. Corrective actions taken or being taken to meet the 8-hour average carbon feed rate requirement.

3. Records of minimum carbon feed rate data, including the following:

a. Calendar dates for which the minimum amount of carbon feed rate data required under 9 VAC 5-40-6750 I 4 were not collected.

b. Reasons why the minimum data was not collected.

c. Corrective actions taken or being taken to obtain the required amount of data.

4. Records of exclusions, including documentation of each time data were excluded from the calculation of average carbon feed rates and the reasons why.

5. Records of calendar dates, including the calendar date on each record.

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9 VAC 5-40-6770. Reporting.

A. The provisions governing reporting shall be as follows:

1. With regard to the emissions standards in 9 VAC 5-40-6660 A, 9 VAC 5-40-6670, 9 VAC 5-40-6680, and 9 VAC 5-40-6690, the provisions of 9 VAC 5-40-50 (Notification, records and reporting) apply.

2. With regard to the emission limits in 9 VAC 5-40-6570 through 9 VAC 5-40-6650 and 9 VAC 5-40-6660 B, the following provisions apply:

a. 9 VAC 5-40-50 F and H.

b. 40 CFR 60.7.

c. Subsections B and C of this section.

B. The owner of an affected facility shall submit (i) an initial report; (ii) annual reports; and (iii) semiannual reports for any emission or parameter level that does not meet the provisions of this article, as described in subdivisions B 1 through B 3 of this subsection. All reports shall be submitted on paper, postmarked on or before the submittal dates in subdivisions B 1 through B 3. Electronic reports may be submitted with the board's prior approval. All reports required by subdivisions B 1 a, B 2, and B 3 shall be maintained onsite for 5 years.

1. As specified in 40 CFR 60.7(c), the initial report shall be submitted no later than 180 days after the final compliance date. The initial report shall include the following:

a. The emission levels measured on the date of the initial

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evaluation of the continuous emission monitoring systems for all of the following pollutants or parameters as recorded in accordance with 9 VAC 5-40-6760 E 2:

(1) The 24-hour daily geometric average concentration of sulfur dioxide emissions or the 24-hour daily geometric percent reduction of sulfur dioxide emissions.

(2) For Class I units, the 24-hour daily arithmetic average concentration of nitrogen oxides emissions.

(3) The 4-hour block or 24-hour daily arithmetic average concentration of carbon monoxide emissions.

(4) The 4-hour block arithmetic average load level of the municipal waste combustion unit.

(5) The 4-hour block arithmetic average flue gas temperature at the inlet of the particulate matter control device.

b. The results of the initial stack tests as required by 9 VAC 5-40-6730 C and recorded in 9 VAC 5-40-6760 D.

c. The test report that documents the initial stack tests, including supporting calculations.

d. The initial performance evaluation of the continuous emissions monitoring systems, using the applicable performance specifications in appendix B of 40 CFR Part 60 to conduct the evaluation.

e. The maximum demonstrated load of the municipal waste

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combustion unit and the maximum demonstrated temperature of the flue gases at the inlet of the particulate matter control device, using values established during the initial stack test for dioxins/furans emissions, and including supporting calculations.

f. If activated carbon is used to control dioxins/furans or mercury emissions, the average carbon feed rates recorded during the initial stack tests for dioxins/furans and mercury emissions, including supporting calculations as specified in 9 VAC 5-40-6760 F 1 a and b.

g. If carbon dioxide is monitored instead of oxygen as a diluent gas, the relationship between oxygen and carbon dioxide as specified in 9 VAC 5-40-6750 F.

2. The annual report shall be submitted no later than February 1 of each year that follows the calendar year in which the data is collected. If the facility has a federal operating permit for any unit, the permit may require submittal of semiannual reports. The annual report shall summarize data collected for all pollutants and parameters regulated under this article, and shall include:

a. The results of the annual stack test as required by 9 VAC 5-40-6730 C and as recorded under 9 VAC 5-40-6760 D 1.

b. A list of the highest average levels recorded, in the appropriate units, for the following pollutants and parameters:

(1) Sulfur dioxide emissions.

(2) For Class I units, nitrogen oxides emissions.

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(3) Carbon monoxide emissions.

(4) Load level of the municipal waste combustion unit.

(5) Temperature of the flue gases at the inlet of the particulate matter air pollution control device (4-hour block average).

c. The highest 6-minute opacity level measured. The value shall be based on all 6-minute average opacity levels recorded by the continuous opacity monitoring system as required by 9 VAC 5-40-6760 E 1 a.

d. For municipal waste combustion units that use activated carbon for controlling dioxins/furans or mercury emissions, the following records shall be included:

(1) The average carbon feed rates recorded during the most recent dioxins/furans and mercury stack tests.

(2) The lowest 8-hour block average carbon feed rate recorded during the year.

(3) The total carbon purchased and delivered to the municipal waste combustion plant for each calendar quarter. If the total carbon purchased and delivered is evaluated on a municipal waste combustion unit basis, the total carbon purchased and delivered for each individual municipal waste combustion unit shall be recorded.

(4) The required quarterly carbon usage of the municipal waste combustion plant calculated using the equations in 9 VAC 5-40-6760 F 1 e (1) and

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(2). If the required quarterly usage for carbon is evaluated on a municipal waste combustion unit basis, the required quarterly usage for each municipal waste combustion unit shall be recorded.

e. The total number of days the minimum number of hours of data for the following pollutants or parameters were not obtained, including the reasons why data were not obtained and corrective actions taken to obtain the data in the future:

- (1) Sulfur dioxide emissions.
- (2) For Class I units, nitrogen oxides emissions.
- (3) Carbon monoxide emissions.
- (4) Load level of the municipal waste combustion unit.
- (5) Temperature of the flue gases at the inlet of the

particulate matter air pollution control device.

- (6) Carbon feed rate.

f. The number of hours data have been excluded from the calculation of average levels (include the reasons for excluding it), for the following pollutants and parameters:

- (1) Sulfur dioxide emissions.
- (2) For Class I units, nitrogen oxides emissions.
- (3) Carbon monoxide emissions.
- (4) Load level of the municipal waste combustion unit.
- (5) Temperature of the flue gases at the inlet of the

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particulate matter air pollution control device.

(6) Carbon feed rate.

g. A notice of intent to begin a reduced stack testing schedule for dioxins/furans emissions during the following calendar year if the facility is eligible for alternative scheduling as provided in 9 VAC 5-40-6740 E 1 or 2.

h. A notice of intent to begin a reduced stack testing schedule for other pollutants during the following calendar year if the facility is eligible for alternative scheduling as provided in 9 VAC 5-40-6740 E 1.

i. A summary of any emission or parameter level that did not meet the limits specified in this article.

j. A summary of the data in subdivisions B 2 a through d of this section from the year preceding the reporting year which gives the board a summary of the performance of the municipal waste combustion unit over a 2-year period.

k. If carbon dioxide is monitored instead of oxygen as a diluent gas, documentation of the relationship between oxygen and carbon dioxide, as specified in 9 VAC 5-40-6750 F.

l. Documentation of periods when all certified chief facility operators and certified shift supervisors are offsite for more than 12 hours.

3. A semiannual report on any recorded emission or parameter level that does not meet the requirements specified in this article shall be submitted. For data collected during the first half of a calendar year, the report shall be submitted by August 1 of

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that year. For data collected during the second half of the calendar year, the report shall be submitted by February 1 of the following year. The following information shall be included:

a. For any of the following pollutants and parameters that exceeded the limits specified in this article, the calendar date they exceeded the limits, the averaged and recorded data for that date, the reasons for exceeding the limits, and corrective actions taken:

(1) Concentration or percent reduction of sulfur dioxide emissions.

(2) For Class I units, concentration of nitrogen oxides emissions.

(3) Concentration of carbon monoxide emissions.

(4) Load level of the municipal waste combustion unit.

(5) Temperature of the flue gases at the inlet of the particulate matter air pollution control device.

(6) Average 6-minute opacity level. The data obtained from the continuous opacity monitoring system are not used to determine compliance with the limit on opacity emissions.

b. If the results of the annual stack tests (as recorded in 9 VAC 5-40-6760 D1) show emissions above the limits for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash, a copy of the test report that documents the emission levels and corrective actions taken shall be included.

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c. Municipal waste combustion units that apply activated carbon to control dioxins/furans or mercury emissions shall include the following.

(1) Documentation of all dates when the 8-hour block average carbon feed rate (calculated from the carbon injection system operating parameter) is less than the highest carbon feed rate established during the most recent mercury and dioxins/furans stack test, as specified in 9 VAC 5-40-6760 F 1 a, including (i) eight-hour average carbon feed rate, (ii) reasons for occurrences of low carbon feed rates, (iii) corrective actions taken to meet the carbon feed rate requirement, and (iv) the calendar date.

(2) Documentation of each quarter when total carbon purchased and delivered to the municipal waste combustion plant is less than the total required quarterly usage of carbon. If the total carbon purchased and delivered is evaluated on a municipal waste combustion unit basis, the total carbon purchased and delivered for each individual municipal waste combustion unit shall be recorded. The following information shall be included : (i) amount of carbon purchased and delivered to the plant, (ii) required quarterly usage of carbon, (iii) reasons for not meeting the required quarterly usage of carbon, (iv) corrective actions taken to meet the required quarterly usage of carbon, and (iv) the calendar date.

C. Changes to semiannual or annual reporting dates may be pursued in accordance with the procedures of 40 CFR 60.19(c), and with the approval of the board. 9 VAC 5-40-6780. Requirements for air curtain incinerators that burn 100 percent yard

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waste.

A. The owner of an air curtain incinerator subject to the provisions of this article shall meet the following opacity requirements no later than 180 days after the final compliance date.

1. The opacity limit is 10 percent (6-minute average) for air curtain incinerators that can combust at least 35 tons per day of municipal solid waste and no more than 250 tons per day of municipal solid waste.

2. The opacity limit is 35 percent (6-minute average) during the startup period that is within the first 30 minutes of operation.

3. Except during malfunctions, the requirements of this article apply at all times. Each malfunction shall not exceed 3 hours.

4. Compliance with the opacity limit shall be achieved as follows.

a. Reference Method 9 shall be used to determine compliance with the opacity limit.

b. An initial test for opacity as specified in 40 CFR 60.8 shall be conducted.

c. After the initial test for opacity, annual tests shall be conducted no more than 13 calendar months following the date of the previous test.

B. The owner of an air curtain incinerator subject to the provisions of this article shall meet the following recordkeeping and reporting requirements.

1. A notice of construction shall be provided that includes the following:

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- a. The intent to construct the air curtain incinerator.
- b. The planned initial startup date.
- c. Types of fuels planned to combust.
- d. Incinerator capacity, including supporting capacity calculations,

as specified in 9 VAC 5-40-6730 F.

2. Records of results of all opacity tests shall be maintained onsite in either paper copy or electronic format unless the board approves another format.

3. All records for each incinerator shall be maintained for at least 5 years.

4. All records shall be available to the board or for onsite review by an inspector.

5. The results (each 6-minute average) of the opacity tests shall be submitted no later than February 1 of the year following the year of the opacity emission test.

6. Reports shall be submitted as a paper copy on or before the applicable submittal date. Reports may be submitted on electronic media with prior approval of the board.

7. Annual reporting dates may be revised with the prior approval of the board (see 40 CFR 60.19(c)).

8. All reports shall be maintained onsite for a period of 5 years.

9 VAC 5-40-6790. Registration.

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The provisions of 9 VAC 5-20-160 (Registration) apply.

9 VAC 5-40-6800. Facility and control equipment maintenance or malfunction.

A. The provisions of 9 VAC 5-20-180 (Facility and control equipment maintenance or malfunction) apply to the emission standards set forth in 9 VAC 5-40-6670

A, 9 VAC 5-40-6680, and 9 VAC 5-40-6690.

B. The provisions of 9 VAC 5-20-180 A, B, C, D, H, and I and subsections C through E of this section apply to the emission limits in 9 VAC 5-40-6530 through 9 VAC 5-40-6660 and 9 VAC 5-40-6670 B.

C. The emission limitations and operating limits apply at all times except during periods of municipal waste combustion unit startup, shutdown, or malfunction. No startup, shutdown, or malfunction shall last for longer than 3 hours. This subsection shall not apply to the emission standards set forth in 9 VAC 5-40-6670 A, 9 VAC 5-40-6680, and 9 VAC 5-40-6690.

D. A maximum of 3 hours of test data may be dismissed from compliance calculations during periods of startup, shutdown, or malfunction.

E. During startup, shutdown, or malfunction periods longer than 3 hours, emissions data shall not be discarded from compliance calculations, and all provisions under 40 CFR 60.11(d) apply.

9 VAC 5-40-6810. Permits.

A permit may be required prior to beginning any of the activities specified below if the provisions of 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) and 9 VAC 5 Chapter 80 (9

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VAC 5-80-10 et seq.) apply. Owners contemplating such action should review those provisions and contact the appropriate regional office for guidance on whether those provisions apply.

1. Construction of a facility.
2. Reconstruction (replacement of more than half) of a facility.
3. Modification (any physical change to equipment) of a facility.
4. Relocation of a facility.
5. Reactivation (restart-up) of a facility.
6. Operation of a facility.

ARTICLE 45 51.

Emission Standards for

Lithographic Printing Processes (Rule 4-~~45~~ 51).

9 VAC 5-40-7800 through 9 VAC 5-40-7940.

ARTICLE 46 52.

Emission Standards for

Municipal Waste Combustors (Rule 4-~~46~~ 52).

9 VAC 5-40-7950 through 9 VAC 5-40-8190.